

# OCR Computer Science AS Level

## 1.4.2 Data Structures

Flashcards



# What is an array?



# What is an array?

An ordered, finite set of elements of a single type.



# What type of array is a linear array?



# What type of array is a linear array?

A one dimensional array.



# How can you visualise a two dimensional array?



How can you visualise a two dimensional array?

You can visualise it as a spreadsheet/table.



# How can you visualise a three dimensional array?





How can you visualise a three dimensional array?

A three dimensional array can be visualised as a multi-page spreadsheet.



# What is a record also known as?



# What is a record also known as?

## A row in a file



# What is a record made up of?



# What is a record made up of?

A record is made up of fields.



How can you select a field from a record  
using pseudocode?



How can you identify a field from a record using programming?

`recordName.fieldName`



# What is the definition of a list?





# What is the definition of a list?

A data structure consisting of a number of items, where the items can occur more than once.



# What are the main differences between arrays and lists?



# What are the main differences between arrays and lists?

- Lists can store data non-contiguously whereas arrays store data in order.
- Lists can store data of more than one data type.



# What is a tuple?



# What is a tuple?

An immutable, ordered set of values of any type.



# What is the difference between a tuple and an array?



# What is the difference between a tuple and an array?

Tuples are initialised using regular brackets instead of square brackets.



# What is a stack?





# What is a stack?

A last in first out data structure, where items can only be removed from and added to the top of the list



Give an example of where stacks may be used.



Give an example of where stacks may be used.

- Back button in a web page
- Undo buttons



# What is a queue?



# What is a queue?

A first in first out data structure, where items are added to the end of the queue and removed from the front of the queue.



(Stacks)

# What does the operation isEmpty() do?



(Stacks)

What does the operation isEmpty() do?

Checks to see if the stack is empty



(Stacks)

What does the operation `push(value)` do?





(Stacks)

What does the operation `push(value)` do?

Adds a new value to the top of the stack



(Stacks)

# What does the operation peek() do?



(Stacks)

What does the operation `peek()` do?

Returns the top value of the stack  
without removing it



(Stacks)

# What does the operation `pop()` do?



(Stacks)

What does the operation `pop()` do?

Returns and removes the value at the top of the stack



(Stacks)

# What does the operation size() do?



(Stacks)

# What does the operation size() do?

It returns the size of the stack



(Stacks)

# What does the operation `isFull()` do?





(Stacks)

What does the operation `isFull()` do?

Checks to see if the stack is full.



(Queues)

What does the operation  
enQueue(value) do?



(Queues)

What does the operation enQueue(value) do?

Adds the value to the end of the queue



(Queues)

# What does the operation deQueue() do?



(Queues)

What does the operation deQueue() do?

Removes the item from the end of the queue



(Queues)

# What does the operation isEmpty() do?



(Queues)

What does the operation isEmpty() do?

It checks to see if the queue is empty



(Queues)

# What does the operation isFull() do?





(Queues)

What does the operation isFull() do?

Checks to see if the queue is full

